

REPORT OF REGIONAL
ANIMAL PARASITE CONFERENCE
Atlanta, Ga., October 27-28, 1947

Reserve
This conference was first proposed at a meeting of the State extension directors of the Southern Region at Lakeland, Fla., in April 1947. Interest had been stimulated by the two similar conferences held in the West the previous October. After the formality of polling the States concerned and obtaining favorable reactions from the extension directors, M. L. Wilson, Director of the Federal Extension Service, officially called the conference to meet in Atlanta on October 27-28, and invited the participation of the State extension services of the region. R. W. Trullinger, of the Office of Experiment Stations, United States Department of Agriculture, also invited the cooperation of the State experiment stations.

Representatives from all 10 States of the area were in attendance. These representatives included entomologists, animal husbandmen, dairy husbandmen, and veterinarians in research, extension, and regulatory fields, as well as a few administrators. Both research and extension workers were present from the United States Department of Agriculture.

The conference was informal in character. Topics taken up and discussed were cattle grubs, lice, flies, internal parasites, and other insect pests (such as screwworms and ticks). Under each topic research results from Federal and State sources were presented, followed by reports of extension activities, State by State. Free discussion was engaged in so that full information on each topic would be available for consideration.

At the opening of the conference small committees were appointed to take notes and to make reports on each of the major topics discussed. These reports, largely in the form of recommendations, were presented to the whole group for discussion and approval at the closing session of the conference.

These reports, as approved, follow, and a list of all persons attending the conference, of pertinent reference literature, and also the resolutions adopted are appended.

M. P. Jones, Chairman

C. D. Lowe, Secretary

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Report of Committee on Cattle Grubs

Rotenone is still the only toxicant recommended for the control of cattle grubs. The rotenone powder may be used as a dust or water suspension, and should be 325-mesh fineness and contain 5-percent rotenone. It may be applied as a spray, dust, dip, or wash.

Spray

Power spraying with at least 400 pounds nozzle pressure gives fast and efficient control. Complete saturation of grub-infested areas on the animal is essential.

Formula for sprays:

7-1/2 pounds of 5-percent rotenone (or its equivalent to contain .04 percent rotenone) bearing powder.

100 gallons of water.

Amount generally needed is 1 gallon per animal.

No wetting agent is needed if spray is applied with a power sprayer equipped with a suitable agitator.

Dusts

Treating the infested animals with 3 ounces of at least a 1.5-percent rotenone dust is very effective, but slow, since the dust must be rubbed into the hair. The dust should contain approximately 1 part by weight of rotenone-bearing powder to 2 parts by weight of a heavy diluent such as tripoli earth or pyrophyllite.

Dips

Cattle grubs can be controlled by dipping in a rotenone-bearing solution. The animals must be held in the vat for at least 2 minutes.

Formula for dips:

100 pounds 5-percent rotenone-bearing powder to make 6-percent rotenone.

100 pounds of wettable sulfur.

1,000 gallons of water.

Use a long-handled brush to scrub the animals' backs while they are in the vat.

Washes

Treating by washes is very effective for the control of cattle grubs, although it is a slow, laborious procedure. The wash is applied to the infested area of the animal, which is scrubbed with a stiff brush. One pint per grown animal should be used.

Formula:

12 ounces of 5-percent rotenone-bearing powder.

2 ounces of soap or some other desirable wetting agent.

1 gallon of water.

Interval between treatments

For most economical control, apply the materials at 30-day intervals during the grub season. For complete eradication it is recommended that the applications be made at 2-week intervals and so long as grubs appear on the animal's back.

Treatment should start shortly before the first grubs reach maturity.

New materials, such as benzene hexachloride, chlordane, and chlorinated camphene, have not shown promise of controlling grubs.

Area control for grubs is strongly recommended, since heel flies usually migrate for only a short distance.

W. S. McGregor, Chairman
J. R. Hawkins, Secretary

W. A. Ridgeway
W. P. Tyrrell

Report of Committee on Louse Control

A. Cattle Lice

The preferred material for control of cattle lice is DDT. Several procedures follow.

1. Regular spraying with 1.5-percent DDT (1 pound 50-percent wettable powder in 4 gallons of water) for hornfly control.
2. If no application has been made for hornfly control, use one of the following treatments in the fall:
 - a. One application of 1.5-percent DDT spray.
 - b. One dipping in 0.5-percent DDT except for tail louse, in which case a second dipping is suggested 2 weeks after the first treatment, or dip the tails in 1.5-percent DDT after the first dipping.
 - c. Two applications of 1-percent rotenone dust at 15-day intervals.
3. Spraying, dipping, or dusting with rotenone in cattle grub control operations will control lice, provided coverage is thorough.
4. Benzene hexachloride is effective but still in the experimental stage. Any use of it at present should be restricted to beef animals and at concentrations not in excess of 0.06-percent gamma isomer.

B. Hog Lice

1. Spray with 1.5-percent DDT when the lice appear, using 1 pound wettable powder in 4 gallons of water. One thorough treatment is sufficient.
2. Crankcase oil used against lice and mange will give good control.
3. Benzene hexachloride is effective against lice and mange, but additional research is needed before it can be given general recommendation.

C. Poultry Lice

1. Sodium fluoride, 1 ounce in 1 gallon of water as a dip.
2. Sodium fluoride, applied by the "pinch" or dusting method.
3. 5-percent DDT dust applied to the birds.
4. Nicotine sulfate applied to the roosts. However, it will not effectively control head lice.

D. Sheep and Goat Lice

0.2-percent DDT spray or dip in connection with tick control. Thorough coverage is important if complete elimination is the objective.

W. C. Nettles, Chairman
F. S. Arant, Secretary
F. W. Fitch

W. A. Price
E. W. Laake, Consultant
I. H. Roberts, Consultant

Report of Committee on Use of DDT and Other Materials for Fly Control

In consideration of the control of ectoparasites of cattle, this committee feels that recommendations should not be limited to any one species of insect. For instance, it has been pointed out by various Federal and State workers that effective hornfly control by the use of DDT will also control some other ectoparasites.

It is also realized that different methods of application will be used and that concentration of DDT sprays and the amount of material may vary with the method of application. On the average stock farm the materials will be applied by hand sprayers and small power sprayers. Some operators will use dipping vats and large power sprayers.

A. Hornflies

Water-dispersible powder is the preferred form of material for use in hornfly control. DDT wettable powder has been found to be economical and effective under a wide variety of conditions, and no toxic symptoms have been observed in treated animals. A good oil emulsion, properly formulated and mixed, can be used. At present, however, it is difficult to designate specific emulsions for general use.

The concentration of DDT and the quantity to use per animal depend upon the method of application and local conditions. It has been found by research and extension workers in the Southeast that the most practical and effective concentration for this area is 1.5-percent DDT (1 pound to 4 gallons of water).

The quantity of spray necessary to wet an animal thoroughly will depend upon the breed and size of the animal and the method of application. The quantity of spray will average from 1 to 1.5 pints per head.

B. Other Flies

DDT sprays, when applied only to livestock, are considered ineffective in the control of the stablefly, but this pest can be controlled by spraying barns, sheds, and other resting places.

For the control of stableflies and houseflies on the farm, sprays containing 2.5-percent (made by mixing 2 pounds of wettable powder, containing 50-percent of DDT to 5 gallons of water) should be applied to the interiors of barns, sheds, and other resting places of the flies. These sprays are best applied by small power sprayers or knapsack sprayers, completely wetting the interior surfaces without appreciable run-off. The pressure of power sprayers should be regulated to about 100 pounds to avoid rebound of the spray and consequent waste. Spraying of water cups, mangers, and feed should be avoided.

DDT has not been found effective in the control of horseflies and deer flies. However, research workers report some progress in the control of these pests with some of the new insecticides.

W. A. Ruffin, Chairman

W. W. Stanley, Secretary

W. G. Bruce, Consultant

J. O. Andes

C. N. Lomas

Report of Committee on Internal Parasites (Medication)

A. Phenothiazine for Removal of Worms

1. Horses

Phenothiazine, certainly the most effective drug for controlling strongylosis, may be safely administered to animals of average size in therapeutic doses of 30 grams (about 1 ounce) in capsules, boluses, prepared suspensions, or in feed. A good regimen consists in administering 5 grams daily in feed for six consecutive days, or until a therapeutic dose has been given. Constipation should be avoided. Treatment is contraindicated by kidney disease, severe emaciation, extreme anemia, and other blood dyscrasias, and diets of low calcium and protein content.

2. Cattle

Doses of 10 grams (about 1/3 ounce) per 100 pounds of body weight are effective for removing common stomach worms, trichostrongyles, and nodular worms, but larger doses are required for removal of Ostertagia. Since this latter species occurs widely and is capable of severe damage to calves, doses of 20 grams (about 2/3 ounce) for each estimated hundredweight are generally recommended. The total dose, however, should not exceed 60 grams, or about 2 ounces. The drug is administered as outlined in the paragraph on horses.

3. Sheep and Goats

Gastrointestinal Roundworms.—Phenothiazine, the most useful drug for removing and controlling gastrointestinal nematodes of sheep and goats, is efficacious against *Haemonchus*, *Ostertagia*, *Trichostrongylus*, *Bunostomum*, *Oesophagostomum*, and *Chabertia*. To remove these parasites, doses of 20 to 40 grams (usually 25 grams, or about 1 ounce) are given to adult animals and about one-half of these amounts to lambs and kids under 60 pounds. *Trichostrongyles* are less readily removed than some of the others such, for example, as large stomach worms (*Haemonchus contortus*); hence a knowledge of the predominant species with which one is confronted is of value for determining the best dose-rate for a flock. The chemical is administered in capsules, as drenches, or in any suitable feed stuff. Treatment should not be given to ewes and does during the last month of pregnancy.

The free choice administration of phenothiazine in salt is a very effective control measure. It consists in making accessible to flocks of sheep or goats a mixture of phenothiazine, 1 part by weight, and loose salt, 9 or 10 parts by weight, as a means of self-medication.

4. Poultry

To remove adult caecal worms, individual doses of about 1/2 gram per bird are efficacious. It is usually given in dry mash at the rate of about 1 pound of phenothiazine for 500 to 1,000 birds, depending upon their size. Concentration in feed mix should not be less than 0.5 percent.

B. Sodium Fluoride for Removal of Roundworms from Hogs

1. Large Roundworms

The most effective treatment against large roundworms is sodium fluoride. This chemical (technical grade, tinted) is given in dry,

ground feed, at a concentration of 1-percent by weight for a period of 1 day. It should not be given in garbage, slops, milk, wet feed, or in capsules. There should be no fasting or purgation, but the animals should be accustomed to the feed in which the chemical is given and be slightly underfed the day before treatment. Softening of feces and occasional vomiting are sometimes caused by the treatment, but the effects are transitory. The treatment should not be given to pigs exhibiting symptoms of gastroenteritis, or to pregnant sows.

2. The frequency of treatment necessary to achieve the best control of large roundworms has not been determined. On the basis of limited experiments, and taking into account the cycle of the parasite as well as the desirability of infrequent use of a potentially toxic chemical, it may be adequate to treat shortly after weaning and again about 2 months later.

C. Lead Arsenate for the Removal of Tapeworms From Sheep

1. Tapeworms

Lead arsenate, about which more needs to be known, has given good results against tapeworms both in the field and experimentally. Its high efficacy and beneficial effects on tapeworm-infested lambs and kids make it appear that this may become the treatment of choice. Doses up to 1 gram for lambs, kids, sheep, and goats have been given. The dose may conveniently be given in a No. 13 gelatin capsule. No contraindications to the treatment are known.

A. L. DuRant, Chairman
W. L. Sippel, Secretary

Jack Kelly
J. S. Robinson

A. O. Foster, Consultant

Report of Committee on Other External Parasites

A. Screwworms

Smear 62 is available and should continue to be used. Smear 82 is equally effective. These treatments should be applied to uninfested animals to prevent infestations. Infested animals should be treated twice a week until healed.

In addition to chemical control of infested stock, emphasis should be placed on inspection and treatment of infested animals shipped north or west from infested areas.

B. Fleeceworms

The fleeceworm treatment consisting of

- 10-percent Diphenyl
- 1-percent Triton x 70
- 5-percent N-Butylalcohol
- 84-percent Benzol

is still recommended, but preliminary research indicates that several of the new chlorinated insecticides at a concentration of 2-percent are superior to 10-percent Diphenyl in protecting animals from reinfestation. A new recommendation can be expected next year.

C. Ticks

The Gulf coast tick and Lone Star tick can be controlled by sprays. DDT sprays at concentrations of 2.5 percent or lower are not completely effective against engorged forms, but concentrations as low as 0.75-percent thoroughly applied will kill flat stages and will provide 2 and 3 weeks' protection against reinfestation. However, benzene hexachloride at a concentration of 0.025-percent gamma isomer kills all stages of ticks. Research results indicate a kill of all stages and 2- to 3-week protection when animals are treated with 0.75-percent or more DDT in combination with 0.025-percent gamma isomer BHC. At present, BHC or combinations of this insecticide with other materials are still considered in the experimental stage. Any use of BHC at present should be restricted to beef animals not producing milk for human consumption.

D. The Winter Tick

The winter tick can be controlled by DDT sprays containing 0.75-percent DDT or by a 5-percent DDT powder rubbed into the hair of the animal.

E. Brown Dog Ticks

Good control can be obtained with DDT treatment of infested premises and on animals. Building treatment requires thorough coverage of walls, baseboards, and casings with 5-percent DDT in an odorless kerosene and a 10-percent DDT powder blown into cracks. On dogs a 10-percent powder is effective if repeated treatments are made, though engorged ticks possess more resistance to the material than flat ticks. Benzene hexachloride rapidly kills all stages but does not have prolonged residual effect. One-percent rotenone is also effective applied as either a wash or dust.

F. Sheep Ticks and Goat Lice

These can be eradicated by one dipping in 0.2-percent DDT applied as an emulsion or suspension. Six ounces of 5-percent rotenone or its equivalent in each 100 gallons of water applied as a dip is also recommended for sheep tick.

G. Sheep Scab

Nicotine and lime sulfur are the only official recommendations for sheep scab. Experimental work with benzene hexachloride indicates that it is very promising for scab control.

H. Sheep Head Bot

Control obtained by injection of a 3-percent aqueous lysol solution into the nasal passages under pressure (see references for procedure and equipment).

I. Poultry Parasites

1. Ticks and Mites

Tests have shown that fowl ticks and poultry mites may be effectively controlled by completely spraying of poultry houses and roosting places with a solution of 5-percent DDT in kerosene. Similar strengths of DDT in emulsion and suspensions are effective against fowl ticks. BHC shows promise against ectoparasites of poultry, but recommendations concerning the use of this material are deferred pending investigation of the risk of tainting flesh and eggs.

T. J. Connor, Chairman
Z. A. Massey, Secretary

G. B. Phillips
A. L. Shealey

R.C. Bushland, Consultant

Report of the Committee on Recommendations for
Further Research

The committee on recommendations for further research is aware of the great advances that have been made on the biology and control of external and internal parasites of animals. However, the committee recognizes also the fact that more effective and more desirable methods of control are needed for many of the pests of livestock and poultry.

With the rapid growth of the livestock industry in the Southeastern States have come new and important pest-control problems.

Discussions of these problems under a wide variety of conditions have suggested the need for outlining specific research activities that will be of primary concern in the Southeastern part of the United States. The recommendations proposed here are intended especially for those groups or individuals charged with the responsibility of conducting research in this particular area. Extension Service personnel can, however, contribute valuable data on the practical aspects of pest control, and it is urged that they take advantage of every opportunity to obtain accurate information on the presence of these parasites and the damage done by them and on the effectiveness of the various recommended control methods.

A. cattle grubs

Further research on cattle grubs should include:

1. Accurate surveys to determine distribution, degree of infestation, and activity of Hypoderma lineatum (common) and H. bovis (northern) species.
2. Large-scale community-effort control programs in order to determine the minimum area and factors necessary to achieve eradication within a given locality.
3. The development of external and internal treatments that will provide control with a single application before the larvae reach the back.
4. Tests with new insecticides should be continued.
5. Carefully controlled research to obtain precise information on extent of losses resulting from damage to hides and carcasses, loss of body weight, reduced milk flow, and disturbance of animals by heel fly attacks.

B. Louse Control

1. Further studies on the optimum and minimum concentrations and relative efficiency of effective materials used alone or in combinations.
2. Accurate surveys to determine distribution, degree of infestation, and activity of cattle lice, especially of the tail louse (Haematopinus quadripertusus).
3. Carefully controlled research to obtain precise information on extent of losses resulting from lice infestations, specifically, loss of body weight, reduced milk production, feed wasted, and so on.

C. Flies Affecting Livestock

1. Horseflies and deer flies.

Intensive studies on the biology and control of deerflies and horseflies.

2. Stableflies.

a. An effective insecticide or repellent for the protection of animals.

b. Studies on the treatment of buildings and other resting places as a means of control.

3. Blackflies (Buffalo gnats, sand flies, and turkey gnats).

Studies on the biology and control.

4. Determine losses caused by various species of flies.

D. Ticks

Determine the effectiveness on hosts and on the ground of new insecticides, alone and in combination for various species, especially the Gulf coast tick and Lone Star tick.

E. Poultry Parasites

Determine efficiency of new materials and new methods of application for control of lice, mites, ticks, and fleas.

F. Screwworms

Determine the effect of fly-control programs on the incidence of screwworm infestations, and the effectiveness of DDT against screwworm flies.

G. Hog Mange

Further studies with benzene hexachloride and other materials.

H. Sheep Bots

Study effectiveness of B.A.I. lysol treatment in Southeast.

I. Internal parasites

1. Further studies of lead arsenate and other materials in the removal of tapeworms from ruminants.

2. Studies to determine efficacy of free-choice method of administering phenothiazine to cattle.

3. Determine methods and materials of eliminating lungworms and kidney worms of swine and lungworms of sheep.

General Recommendations

1. Continue and intensify toxicological investigations of new insecticides and parasiticides.

2. Studies to determine the optimum combinations of materials and treatments to control simultaneously the greatest number of species.

3. Investigate thoroughly the possibilities of complete eradication of hornflies, horseflies, lice, screwworm, cattle grub, sheep tick, sheep scab, hog mange, and livestock pests for which control methods have been developed.

4. Obtain specific data on losses caused by various external and internal parasites.
5. Determine simple field methods of analyzing concentrations of insecticides in dipping vats.
6. Study livestock management practices with and without medication for control of internal and external parasites of livestock.
7. Study effect of DDT on mosquitoes attacking cattle.
8. Demonstrate the effectiveness of area eradication.

C. S. Hobbs, Chairman

Clay Lyle

C. E. Bell, Jr., Secretary

J. O. Rowell

E. F. Knipling, Consultant

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Selected References

- Effect of Cattle Grub Treatments on Weight Gains in Beef Cattle. Jour. Econ. Ent., V. 38, no. 3, p. 398, June 1945.
- Grub Control on Dairy Cattle in the North East. Jour. Econ. Ent., v. 38, no. 4., p. 442, Aug. 1945.
- Preparation for Use of Dusts, Sprays, Washes and Dips Containing Rotenone for the Destruction of Cattle Grubs. BE&PQ Cir. E-623. Aug. 1944.
- Derris and Cube Dips for the Destruction of Cattle Grubs. USDA, BAI, Proc. Cir. July 1944.
- Rotenone Reduced in Dusts for Cattle Grub Treatments. USDA, BE&PQ and BAI., Cir. E-602. Sept. 1943.
- The Preparation and Use of Derris and Cube Washes for the Control of Cattle Grubs. USDA, BAI Cir. Nov. 1940.
- DDT for Control of the Biting Sheep Louse. Jour. Econ. Ent., v. 39, no. 4. p. 546, Aug. 1946.
- Preliminary Tests With DDT for Single Treatment Eradication of the Swine Louse. Jour. Amer. Vet. Med. Assoc., pp 252-254, April 1946.
- Cattle Lice, Their Biology and Control. N.Y. (Cornell) Agr. Expt. Sta. B. 832, 1946.
- DDT for Lice on Livestock. Nebr. Agr. Col. C. 1541. Processed 1946.
- DDT as a Chicken Louse Control. Jour. Econ. Ent., v. 38, no. 6, p. 700, Dec. 1945.
- DDT for the Control of Goat Lice. Jour. Econ. Ent., v. 38, no. 5, p. 612, Oct. 1945.
- Dusting of Cattle Lice. Jour. Econ. Ent., v. 38, no. 5, p. 611, Oct. 1945.
- Hog Lice Control. Univ. of Idaho, Agr. Expt. Sta., Cir. 103, May 1945.
- Uses of Various DDT Formulations for the Control of Insects Affecting Animals. USDA, BE&PQ, Cir. E-714, March 1947.
- DDT as a Residual Insecticide for Fly Control in Barns. Jour. Econ. Ent., v. 39, no. 3, p. 397. June 1946.
- DDT To Control Hornflies and Gulf Coast Ticks on Range Cattle in Florida. Jour. Econ. Ent., v. 39, no. 1, p. 62, Feb. 1946.
- DDT and Hornfly Populations. Jour. Econ. Ent., v. 39, no. 1, p. 91, Feb. 1946.
- Controlling Hog Mange and Lice, Nebr. Agr. Ext. Cir. E.C.1548. Apr. 1947.
- DDT for the Control of Hornflies in Kansas. Jour. Econ. Ent., v. 39, no. 1, p. 65, Feb. 1946.

- DDT as a Larvicide Against Simulium (Black Flies). Jour. Econ. Ent. v. 38, no. 6, p. 694, Dec. 1945.
- DDT Surface Sprays for Control of Stable Fly Breeding in Shore Deposits of Marine Grass. Jour. Econ. Ent., v. 38, no. 5, p. 548, Oct. 1945.
- Benzene Hexachloride for Animal Parasites. Jour. Econ. Ent., v. 39, no. 4, p. 539, Aug. 1946.
- Effects of Oral Dosages of DDT on Certain Vertebrates. Jour. Econ. Ent., v. 39, no. 3, p. 413, June 1946.
- DDT To Control Insects Affecting Livestock. Jour. Econ. Ent., v. 39, no. 3, p. 367, June 1946.
- Summary of DDT Experiments on Insects That Affect Man and Animals. BE&PQ E-673, Oct. 1945.
- The Effect of DDT Administered Orally to Cows, Horses and Sheep. Jour. Econ. Ent., v. 38, no. 4, p. 423, Aug. 1945.
- DDT Fails To Remove Horse Bots. Jour. Econ. Ent. v. 3, p. 399, June 1945.
- The Status of Lead Arsenate for the Removal of the Common Ruminant Tapeworms, Moniezia expansa and M. Benedeni. Jour. Amer. Vet. Med. Assoc. (In Press)
- Sodium Fluoride for Removing Large Roundworms From Swine. USDA, BAI, Jan. 1946.
- Controlling the Large Roundworm and Cecal Worm of Chickens and Turkeys. USDA, BAI, Oct. 1946.
- Liver Flukes in Cattle and How To Control Them by Medication. USDA, BAI, Nov. 1944.
- Phenothiazine for the Control of Parasites of Farm Animals. USDA, BAI, Oct. 1943.
- Overwintering Ecology of the Screwworm, a Symposium. Jour. Econ. Ent. v. 38, no. 1, pp. 66-95, Feb. 1945.
- Ranch Management for Screwworm Prevention and Eradication. BE&PQ Cir. E-520. Jan. 1941.
- Smear 82 for the Treatment of Screwworms in Livestock. BE&PQ Cir. E-708.
- Control of Sheep Tick by a Single Dipping of DDT. BE&PQ E-679. Jan. 1946.
- Destruction of Sheep Ticks by Dipping in Dilute Rotenone Dips. USDA BAI Proc. Cir. Feb. 1945.
- Field Tests with Fixed Nicotine for the control of Sheep Ticks. North Amer. Vet., v. 25, pp. 536-538, Sept. 1944.
- The Eradication of Sheep Ticks by One Dipping in Dilute Derris-Water or Cube-Water Dips. Jour. Amer. Vet. Med. Assoc., v. 103 (796) July 1943.
- Large Scale Powder Dusting of Feeder Lambs for Winter Control of the Sheep Tick. Jour. Econ. Ent., v. 38, no. 3, p. 285, June 1935.
- Control of the Ear Tick. BE&PQ E-695. July 1946.
- A New Remedy for the Control of the Gulf Coast Tick. BE&PQ E-686. May 1946.
- The Brown Dog Tick.-With Suggestions for Control. BE&PQ E-292 (revised) 1946.
- DDT To Control the Relapsing Fever Tick. Jour. Econ. Ent., vol. 39, p. 396.
- DDT for the Control of the Winter Horse Tick. Jour. Econ. Ent., v. 39, no. 1, p. 92, Feb. 1946.
- Combating the American Dog Tick, Carrier of Rocky Mountain Spotted Fever in the Central and Eastern States. BE&PQ E-454 (revised) 1946.
- Control of the American Dog Tick, Vector of Rocky Mountain Spotted Fever: Preliminary Tests. Jour. Econ. Ent., v. 39, no. 2, p. 235, April 1946.
- A New Remedy for Fleecce Worms. BE&PQ E-633. Feb. 1945.
- An Effective Treatment for the Control of Sheep Head Grub, in Areas Where the Winters are Cold, and a Method of Large-Scale Treatment of Sheep for the Destruction of Head Grubs. Jour. Amer. Vet. Med. Assoc., v. 97 (765) pp. 565-575, Dec. 1940.
- The Sheep Head Grub and Methods of Control. USDA, BAI Proc. Cir. July 1941.
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Resolutions

1. Whereas the livestock industry has assumed a major place in southeastern agriculture, totaling about 30-percent of all farm income in this area, and whereas external and internal parasites of livestock are major limiting factors in livestock production in this area, costing an estimated one-fifth of feed costs of stock produced in this area, and whereas the future success of livestock, dairy, and poultry production may depend upon the control of these parasites, BE IT THEREFORE RESOLVED THAT farmers, stockmen, businessmen, and the general public be made conscious of the seriousness of this situation, and the ways of correcting it.
2. Whereas there is now a critical world food shortage situation which demands the curtailment of all possible wastes in direct foods, as well as in the use of feed for the production of animal products, and since parasites directly increase the consumption of livestock feeds, and thereby otherwise reduce the production of foods for human consumption, BE IT RESOLVED THAT the feeding of livestock parasites be stopped by effective parasite control methods.
3. Whereas the livestock industry is beset by many problems in the field of parasite control involving the use of various insecticide and anthelmintic preparations for different purposes, together with their methods of preparation, their administration, their possible toxic residues in animal and animal products, and the equipment necessary to apply them, BE IT RESOLVED THAT this conference urge the Department of Agriculture, State experiment stations, and industry to accelerate research on these problems, and to make the results of this research available as rapidly as consistent with soundness, for the guidance of other scientists, extension workers, and farmers.
4. Whereas the screwworm overwinters only in the extreme southern part of the United States; and whereas this pest spreads northward annually almost to the Canadian border and thereby inflicts heavy losses on the livestock; and whereas this northward spread is due in large measure to the shipment of screwworm-infested livestock, BE IT RESOLVED THAT this conference urge that steps be taken through educational and regulatory agencies to prevent or restrict the movement of screwworm-infested stock and/or common livestock carriers AND BE IT FURTHER RESOLVED that every effort be made to reduce the number of screwworms in overwintering areas and to control infestations as the pest moves northward by natural spread.
5. Whereas the economic value of community efforts to control hornfly, housefly, cattle lice, and other animal pests have been amply demonstrated, BE IT RESOLVED THAT the advantages of community undertakings be emphasized and that demonstrations of pest control be undertaken on a community or area basis in as many sections of the Southeast as practicable.
6. Whereas the screwworm is a serious pest of all classes of livestock in the South and the survey which has been conducted by the Bureau of Entomology and Plant Quarantine in cooperation with the various State agencies has been of great value in preventing losses from this pest, BE IT RESOLVED THAT this conference commend the Bureau of Entomology and Plant Quarantine

for its contribution to this undertaking and request its continued support of this work and that State agencies further their efforts in these surveys.

7. Whereas there is need for definite information on economic losses produced by external and internal parasites, BE IT RESOLVED that the Department of Agriculture and the State experiment stations be requested to take steps to conduct experiments to determine the nature and extent of losses chargeable to each of the important parasites and disease carriers.
8. In view of the importance of livestock parasites to the agricultural economy of the Southeastern States, the conference recommends that arrangements be made for an immediate conference of workers in each State for the consideration of information which has been made available in this conference, especially in its relation to food and feed conservation, and the development of ways and means for originating "stepped up" programs of control and eradication. The following procedures may have value in this connection.
 - a. Local economic surveys to determine losses suffered by farmers and stockmen from infestation of their stock, for use in arousing public interest and desire for action.
 - b. Enlist the cooperation of other groups, such as businessmen, bankers, etc., in support of the program.
 - c. Utilize to the fullest extent possible the press, the radio, and other channels for dissemination of information.
 - d. Set up local demonstrations, both method and result, as sources of teaching material.
 - e. Use field days and tours to obtain results.
 - f. Instigate intensive educational effort, including demonstrations of control measures.

It is hereby recommended that copies of these resolutions be forwarded to administrative officials of all agencies directly concerned.

Persons Attending the Conference

Alabama (Auburn)

F. S. Arant, Ent., Expt. Sta.
G. B. Phillips, Ext. An. Husb.
W. A. Ruffin, Ext. Ent.
R. S. Sugg, State Vet.
Florida (Gainesville)
A. L. Shealy, Head. An. Indus.

South Carolina (Columbia unless otherwise indicated)

W. R. Chastain, Asst. State Vet.
J. R. Hawkins, Ext. An. Husb.
A. L. DuRant, Ext. An. Husb.,
Florence
W. A. Ridgeway, Ext. An. Husb.,
Newberry

Georgia (Athens unless otherwise indicated)

Charles E. Bell, Jr. Ext. An. Husb.
Walter S. Brown, Dir. Ext. Serv.
Frank W. Fitch, Ext. Dairy.
Paul C. Lemon, SE Forest Expt. Sta.
Tifton.

Z. A. Massey, An. Husb., Expt. Sta.
Experiment.

Wm. L. Sippel, Vet., Expt. Sta.,
Tifton

L. R. Smith, Vet., Atlanta

Kentucky (Lexington)

W. A. Price, Ent., Expt. Sta.

Louisiana (Baton Rouge)

W. S. McGregor, Ext. Ent.

Mississippi (State College)

Clay Lyle, Ent., Expt. Sta.

North Carolina (Raleigh unless otherwise indicated)

J. T. Conner, Ext. Ent.

Jack Kelley, Ext. An. Husb.

C. M. Jackson, Agt., A.C.L.R.R.,
Rocky Mount

C. H. Lomas, Ext. Dairy, Clemson

W. C. Nettles, Ext. Ent., Clemson

Tennessee (Knoxville)

J. O. Andes, Ext. Ent.

Charles S. Hobbs, An. Husb., Expt.
Sta.

J. S. Robinson, Ext. An. Husb.

W. W. Stanley, Ext. Ent.

Wm. P. Tyrrell, Ext. An. Husb.

Virginia (Blacksburg)

J. O. Rowell, Ext. Ent.

USDA Representatives Attending (Washington unless otherwise indicated)

F. C. Bishopp, BE&PQ

E. F. Knipling, BE&PQ

David C. Hall, BE&PQ

H. L. Haller, BE&PQ

W. G. Bruce, BE&PQ, Savannah, Ga.

R. C. Bushland, BE&PQ, Kerrville,
Texas

E. W. Laake, BE&PQ, Kerrville, Tex.

Benjamin Schwartz, BAI.

A. H. Groth, BAI, Auburn, Ala.

Aurel O. Foster, BAI

Irwin H. Roberts, BAI, P.O. Box 464
Albuquerque, New Mexico

H. H. Williamson, Ext. Serv.

M. P. Jones, Ext. Ent.

C. D. Lowe, Ext. An. Husb.